X-533-63-1

(1)

SPACE OPERATIONS CONTROL CENTER

SATELLITE SITUATION REPORT

VOL. 4, NO. 15

AUGUST 15, 1964

GODDARD SPACE FLIGHT CENTER
GREENBELT, MD.

SPACE OPERATIONS CONTROL CENTER
GODDARD SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 4 NO. 15 AUGUST 15, 1964

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY THE GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHSICAL OBSERVATORY AS OF 1200Z ON AUGUST 15, 1964.

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1958 LAUNCHES									
ALPHA 1	EXPLORER 1	004	US	1 FEB	104.5	33.19	1601	342	
BETA 1	ROCKET BODY	016	US	17 MAR	138.4	34.25	4316	653	
BETA 2	VANGUARD 1	005	US	17 MAR	134.0	34.25	3938	650	108.012 &
1959 LAUNCHES									
ALPHA 1	VANGUARD 2	011	US	17 FEB	125.4	32.89	3284	557	
ALPHA 2	ROCKET BODY	012	US	17 FEB	129.7	32.87	3660	553	
ETA 1	VANGUARD 3	020	US	18 SEP	129.8	33.34	3723	506	
MU 1	LUNIK 1	112	USSR	2 JAN	HELIOCENTRIC ORBIT				
NU 1	PIONEER 4	113	US	3 MAR	HELIOCENTRIC ORBIT				
IOTA 1	EXPLORER 7	022	US	13 OCT	101.1	50.32	1062	564	
IOTA 2	ROCKET BODY	023	US	13 OCT	100.9	50.32	1051	552	
1960 LAUNCHES									
ALPHA 1	PIONEER 5	027	US	11 MAR	HELIOCENTRIC ORBIT				
BETA 1	ROCKET BODY	028	US	1 APR	99.1	48.40	737	694	
BETA 2	TIROS 1	029	US	1 APR	99.2	48.38	742	697	
BETA 3	NONE	101	US	1 APR	97.9	48.49	704	609	
BETA 4	NONE	115	US	1 APR	99.9	48.16	799	706	
GAMMA 2	TRANSIT 1B	031	US	13 APR	93.9	51.24	579	352	
GAMMA 4	NONE	099	US	13 APR	96.7	51.25	726	479	
EPSILON 3	NONE	036	USSR	15 MAY	91.1	64.98	397	261	
ZETA 1	MIDAS 2	043	US	24 MAY	94.3	33.02	496	471	
ETA 1	TRANSIT 2A	045	US	22 JUN	101.6	66.72	1062	610	
ETA 2	GREB	046	US	22 JUN	101.6	66.71	1058	611	
ETA 3	ROCKET BODY	047	US	22 JUN	101.4	66.71	1045	606	
ETA 4		840	US	22 JUN	101.5	66.69	1049	615	
ETA 5		841	US	22 JUN	101.5	66.69	1051	610	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1960 LAUNCHES (CONT'D)									
IOTA 1	ECHO I	049	US	12 AUG	114.1	47.28	1911	918	
IOTA 2	ROCKET BODY	050	US	12 AUG	118.1	47.23	1686	1501	
IOTA 3	METAL OBJECT	051	US	12 AUG	118.2	47.24	1679	1524	
IOTA 4	METAL OBJECT	052	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED				
IOTA 5	METAL OBJECT	053	US	12 AUG	118.4	47.30	1696	1524	
NU 1	COURIER 1B	058	US	4 OCT	107.0	28.28	1209	966	
NU 2	ROCKET BODY	059	US	4 OCT	106.6	28.21	1204	927	
XI 1	EXPLORER 8	060	US	3 NOV	112.3	49.97	2246	420	
XI 2	ROCKET BODY	062	US	3 NOV	111.9	49.97	2209	418	
XI 3	NONE	069	US	3 NOV	109.2	49.40	1982	399	
XI 4	NONE	105	US	3 NOV	110.5	50.50	2083	420	
PI 1	TIROS 2	063	US	23 NOV	98.2	48.52	735	613	
PI 2	ROCKET BODY	064	US	23 NOV	98.1	48.52	716	619	
PI 3	NONE	074	US	23 NOV	98.2	48.53	708	632	
PI 4	NONE	075	US	23 NOV	98.3	48.50	730	623	
1961 LAUNCHES									
ALPHA 1	SAMOS 2	070	US	31 JAN	94.7	97.41	540	472	
ALPHA 2	METAL OBJECT	079	US	31 JAN	94.6	97.41	541	464	
GAMMA 1	VENUS PROBE	080	USSR	12 FEB	HELIOCENTRIC ORBIT				
DELTA 2	ROCKET BODY	082	US	16 FEB	118.5	38.84	2592	636	
DELTA 3	NONE	085	US	16 FEB	CURRENT ELEMENTS NOT MAINTAINED				
KAPPA 1	EXPLORER 10	098	US	25 MAR	POSITION UNCERTAIN				
NU 1	EXPLORER 11	107	US	27 APR	108.0	28.78	1777	484	
OMICRON 1	TRANSIT 4A	116	US	29 JUN	103.8	66.84	1002	878	150;400
OMICRON 2	INJUN-SR-3	117	US	29 JUN	103.8	66.83	1001	879	
OMICRON 3-206**	METAL OBJECTS		US	29 JUN					
RHO 1	TIROS 3	162	US	12 JUL	100.4	47.90	823	731	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1961 LAUNCHES (CONT'D)									
RHO 2	ROCKET BODY	165	US	12 JUL	100.3	47.90	813	735	
RHO 3	METAL OBJECT	166	US	12 JUL	98.8	47.94	796	610	
RHO 4	METAL OBJECT	167	US	12 JUL	102.0	47.85	930	776	
SIGMA 1	MIDAS 3	163	US	12 JUL	161.5	91.28	3522	3369	
SIGMA 3	METAL OBJECT	188	US	12 JUL	161.6	91.42	3568	3337	
SIGMA 4	METAL OBJECT	196	US	12 JUL	161.9	91.21	3579	3345	
UPSILON 1	EXPLORER 12	170	US	16 AUG	CURRENT ELEMENTS NOT MAINTAINED				
A DELTA 1	MIDAS 4	192	US	21 OCT	166.0	95.88	3730	3523	
A DELTA 3	METAL OBJECT	194	US	21 OCT	165.6	95.83	3722	3500	
A DELTA 4	METAL OBJECT	195	US	21 OCT	166.4	95.85	3780	3507	
A ETA 1	TRANSIT 4B	202	US	15 NOV	105.8	32.43	1106	952	
A ETA 2	TRAAC	205	US	15 NOV	105.8	32.41	1107	954	
A ETA 3	ROCKET BODY	204	US	15 NOV	105.6	32.43	1102	944	
1962 LAUNCHES									
ALPHA 1	RANGER 3	221	US	26 JAN	HELIOCENTRIC ORBIT				
ALPHA 2	ROCKET BODY	222	US	26 JAN	HELIOCENTRIC ORBIT				
BETA 1	TIROS 4	226	US	8 FEB	100.4	48.32	845	706	
BETA 2	ROCKET BODY	227	US	8 FEB	101.4	48.14	944	701	
BETA 3	METAL OBJECT	228	US	8 FEB	99.5	48.42	766	700	
BETA 4	METAL OBJECT	229	US	8 FEB	100.3	48.30	838	707	
ZETA 1	ORB.SOL.OBS 1	255	US	7 MAR	96.0	32.83	598	537	
ZETA 2	ROCKET BODY	257	US	7 MAR	96.0	32.84	570	563	
KAPPA 1		271	US	9 APR	153.0	86.68	3410	2787	
KAPPA 3		273	US	9 APR	152.6	86.67	3363	2803	
KAPPA 4		274	US	9 APR	153.3	86.67	3424	2802	
MU 2	ROCKET BODY	282	US	23 APR	HELIOCENTRIC ORBIT				
OMICRON 1	ARIEL 1	285	US/UK	26 APR	100.5	53.87	1183	385	136.406
OMICRON 2	ROCKET BODY	288	US/UK	26 APR	100.4	53.86	1174	385	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1962 LAUNCHES (CONT'D)									
A ALPHA 1	TIROS 5	309	US	19 JUN	100.5	58.11	965	597	
A ALPHA 2	ROCKET BODY	311	US	19 JUN	100.4	58.10	956	597	
A ALPHA 3	METAL OBJECT	312	US	19 JUN	101.7	58.22	1080	603	
A ALPHA 4	METAL OBJECT	313	US	19 JUN	99.1	58.00	857	575	
A EPSILON 1	TELSTAR 1	340	US	10 JUL	157.8	44.80	5645	943	
A EPSILON 2	ROCKET BODY	341	US	10 JUL	157.6	44.80	5632	942	
A OMICRON 1		369	US	23 AUG	99.5	98.68	854	621	
A OMICRON 2		370	US	23 AUG	98.2	98.65	753	599	
A OMICRON 3		378	US	23 AUG	100.8	98.71	973	622	
A OMICRON 4		388	US	23 AUG	99.5	98.69	854	619	
A RHO 1	MARINER	374	US	27 AUG	HELIOCENTRIC ORBIT				
A RHO 2	ROCKET BODY	375	US	27 AUG	HELIOCENTRIC ORBIT				
A UPSILON 1		385	US	1 SEP	90.7	82.80	362	258	
A PSI 1	TIROS 6	397	US	18 SEP	98.7	58.31	706	690	
A PSI 2	ROCKET BODY	398	US	18 SEP	98.7	58.31	702	688	
A PSI 3	METAL OBJECT	399	US	18 SEP	99.4	58.44	771	687	
A PSI 4	METAL OBJECT	400	US	18 SEP	98.0	58.20	694	635	
B ALPHA 1	ALOUETTE	424	CANADA	29 SEP	105.5	80.47	1037	999	$136.593$136.077
B ALPHA 2	ROCKET BODY	426	US	29 SEP	105.4	80.48	1031	999	
B ALPHA 3	METAL OBJECT	510	US	29 SEP	105.4	80.51	1027	998	
B ALPHA 4	METAL OBJECT	511	US	29 SEP	105.5	80.44	1046	990	
B GAMMA 1	EXPLORER 14	432	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED				
B GAMMA 2#	ROCKET BODY	NNA	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED				
B ETA 1	RANGER 5	439	US	18 OCT	HELIOCENTRIC ORBIT				
B ETA 2	ROCKET BODY	440	US	18 OCT	HELIOCENTRIC ORBIT				
B KAPPA 1		444	US	27 OCT	132.8	71.32	4278	208	
B LAMBDA 1	EXPLORER 15	445	US	27 OCT	312.3	18.04	17429	307	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1962 LAUNCHES (CONT'D)									
B LAMBDA 2#	ROCKET BODY	NNA	US	27 OCT	INSUFFICIENT OBSERVATIONS				
B MU 1	ANNA 1B	446	US	31 OCT	107.9	50.16	1178	1081	162;324
B MU 2	ROCKET BODY	447	US	31 OCT	107.6	50.13	1168	1066	
B NU 3		450	USSR	1 NOV	HELIOCENTRIC ORBIT				
B TAU 1		502	US	13 DEC	109.8	70.34	2206	229	
B TAU 2	INJUN 3	504	US	13 DEC	112.8	70.37	2470	237	
B TAU 4		508	US	13 DEC	106.3	70.30	1886	226	
B TAU 5		513	US	13 DEC	109.7	70.32	2198	224	
B TAU 6		520	US	13 DEC	112.1	70.38	2408	240	
B UPSILON 1	RELAY 1	503	US	13 DEC	185.1	47.50	7440	1318	$136.140 136.620
B UPSILON 2	ROCKET BODY	515	US	13 DEC	184.9	47.51	7425	1317	
B CHI 1	EXPLORER 16	506	US	16 DEC	104.4	52.01	1202	727	
B PSI 1	TRANSIT 5A	509	US	19 DEC	99.1	90.63	738	694	
B PSI 2		514	US	19 DEC	97.7	90.74	731	570	
B PSI 3		519	US	19 DEC	99.1	90.63	739	692	
B PSI 4		523	US	19 DEC	100.2	90.48	839	700	
1963 LAUNCHES									
1963 03A		527	US	16 JAN	94.5	81.89	526	463	
1963 04A	SYNCOM 1	553	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 04B	ROCKET BODY	532	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED				
1963 05A		533	US	19 FEB	97.7	100.48	801	498	
1963 05B		534	US	19 FEB	97.7	100.49	798	501	
1963 05C		535	US	19 FEB	96.9	100.49	746	477	
1963 05D		536	US	19 FEB	98.3	100.50	834	528	
1963 08B		566	USSR	2 APR	BARYCENTRIC ORBIT				
1963 09A	EXPLORER 17	564	US	3 APR	95.9	47.60	774	257	
1963 13A	TELSTAR 2	573	US	7 MAY	225.3	42.75	10814	958	136.050

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1963 LAUNCHES (CONT'D)									
1963 13B	ROCKET BODY	575	US	7 MAY	225.1	42.77	10790	965	
1963 14A		574	US	9 MAY	166.4	87.31	3731	3560	
1963 14B		579	US	9 MAY	166.4	87.26	3801	3492	
1963 14C		608	US	9 MAY	166.4	87.37	3649	3642	
1963 14D		589	US	9 MAY	CURRENT ELEMENTS NOT MAINTAINED				
1963 14E		602	US	9 MAY	166.1	87.31	3644	3618	
1963 14F		628	US	9 MAY	166.8	87.36	3701	3621	
1963 14G		629	US	9 MAY	166.4	87.36	3654	3636	
1963 14H		702	US	9 MAY	166.4	87.34	3652	3639	
1963 17A		580	USSR	22 MAY	92.6	48.95	555	250	
1963 17C		582	USSR	22 MAY	93.9	49.19	604	326	
1963 22A		594	US	16 JUN	99.7	90.01	760	731	150;400
1963 22B		603	US	16 JUN	99.7	90.01	766	725	
1963 22C		610	US	16 JUN	101.2	90.21	898	737	
1963 22D		611	US	16 JUN	98.1	89.82	775	568	
1963 24A	TIROS 7	604	US	19 JUN	97.4	58.25	645	627	136.234 136.923
1963 24B	ROCKET BODY	605	US	19 JUN	97.4	58.23	646	618	
1963 24C	METAL OBJECT	606	US	19 JUN	97.9	58.39	672	643	
1963 24D	METAL OBJECT	607	US	19 JUN	96.9	58.10	644	576	
1963 25B		614	US	27 JUN	132.3	82.14	4112	339	
1963 26A	RESEARCH SATELLITE FOR GEOPHYSICS	612	US	28 JUN	102.1	49.76	1295	418	
1963 27A		613	US	29 JUN	94.7	82.32	526	484	
1963 27B		615	US	29 JUN	92.9	82.30	419	414	
1963 30A		622	US	19 JUL	167.8	88.37	3786	3616	
1963 30B		635	US	19 JUL	167.8	88.40	3736	3669	
1963 30C		630	US	19 JUL	167.5	88.40	3709	3667	
1963 30D		624	US	19 JUL	167.9	88.31	4140	3267	
1963 30E		631	US	19 JUL	168.3	88.47	3772	3667	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1963 LAUNCHES (CONT'D)									
1963 31A	SYNCOM 2	634	US	26 JUL	1438.1	32.54	35863	35788	$136.980 $136.468$1814.069; $1815.794$1820.177
1963 31B	ROCKET BODY	625	US	26 JUL	CURRENT ELEMENTS NOT MAINTAINED				
1963 38A		669	US	28 SEP	107.1	89.90	1117	1070	
1963 38B		670	US	28 SEP	107.4	89.90	1137	1075	
1963 38C		671	US	28 SEP	107.3	89.91	1134	1076	136.652
1963 38D		672	US	28 SEP	107.3	89.92	1145	1064	
1963 38E		745	US	28 SEP	107.1	89.93	1119	1067	
1963 39A		674	US	17 OCT	6482.8	38.20	116340	101242	
1963 39B		675	US	17 OCT	2319.4	35.90	102372	953	
1963 39C		692	US	17 OCT	6495.2	37.91	115739	102137	
1963 42B		682	US	29 OCT	92.3	89.97	485	290	
1963 43A	POLYOT	683	USSR	1 NOV	102.4	58.93	1406	335	
1963 43B		684	USSR	1 NOV	101.1	58.60	1287	327	
1963 43C		685	USSR	1 NOV	99.0	58.94	1119	296	
1963 43D		686	USSR	1 NOV	101.0	59.83	1270	340	
1963 46A	EXPLORER 18	693	US	27 NOV	5599.5	35.29	194077	2073	136.112
1963 47A	CENTAUR 2	694	US	27 NOV	107.8	30.36	1784	464	
1963 47B		696	US	27 NOV	107.3	30.07	1623	573	
1963 47C		697	US	27 NOV	107.5	30.06	1637	581	
1963 47D		698	US	27 NOV	108.0	29.91	1655	613	
1963 47E		699	US	27 NOV	108.6	30.43	1744	581	
1963 47F		700	US	27 NOV	108.7	30.46	1748	578	
1963 47G		701	US	27 NOV	107.8	30.00	1641	609	
1963 47H		739	US	27 NOV	107.7	30.40	1666	570	
1963 49A		703	US	5 DEC	106.8	89.96	1095	1064	
1963 49B		704	US	5 DEC	107.1	89.95	1121	1069	150;400

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1963 LAUNCHES (CONT'D)									
1963 49C		705	US	5 DEC	107.1	89.97	1115	1073	54;162;324;648
1963 49D		706	US	5 DEC	107.1	89.96	1128	1056	
1963 49E		715	US	5 DEC	107.1	89.96	1119	1069	
1963 49F		753	US	5 DEC	107.1	89.97	1144	1045	
1963 53A	EXPLORER 19	714	US	19 DEC	115.6	78.60	2361	604	
1963 53B		721	US	19 DEC	115.8	78.60	2387	596	
1963 53C		722	US	19 DEC	115.8	78.58	2389	595	
1963 53D		723	US	19 DEC	115.9	78.59	2398	598	
1963 53E		724	US	19 DEC	115.9	78.62	2393	605	
1963 53F		725	US	19 DEC	115.9	78.59	2399	592	
1963 53G		726	US	19 DEC	115.8	78.58	2393	594	
1963 53H		732	US	19 DEC	115.8	78.60	2391	597	
1963 54A	TIROS 8	716	US	21 DEC	99.4	58.50	753	703	136.233 136.923
1963 54B		717	US	21 DEC	99.3	58.51	749	702	
1963 54C		720	US	21 DEC	101.1	58.49	921	698	
1963 54D		736	US	21 DEC	97.7	58.51	712	584	
1963 55B		719	US	21 DEC	90.6	64.53	346	264	
1964 LAUNCHES									
1964 1A		727	US	11 JAN	103.4	69.94	933	912	
1964 1B	GGSE	728	US	11 JAN	103.4	69.92	933	913	
1964 1C	EGRS	729	US	11 JAN	103.4	69.91	933	911	136.803
1964 1D	SOLAR RADIATION	730	US	11 JAN	103.5	69.92	934	912	136.886
1964 1E		731	US	11 JAN	103.5	69.92	933	913	
1964 2A		733	US	19 JAN	101.3	99.05	851	790	
1964 2B		734	US	19 JAN	101.3	99 06	839	801	
1964 2C		735	US	19 JAN	101.3	99.07	841	803	
1964 3A	RELAY 2	737	US	21 JAN	194.7	46.34	7416	2084	136.142$136.620

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1964 LAUNCHES (CONT'D)									
1964 03B		738	US	21 JAN	194.8	46.52	7377	2128	
1964 04A	ECHO 2	740	US	25 JAN	108.7	81.52	1271	1064	136.022;136.170
1964 04B		741	US	25 JAN	108.9	81.51	1310	1045	
1964 04C		742	US	25 JAN	108.8	81.48	1309	1040	
1964 04D		743	US	25 JAN	108.8	81.54	1313	1035	
1964 04E		749	US	25 JAN	99.1	81.60	1139	298	
1964 05A	SATURN 5	744	US	29 JAN	94.1	31.45	687	257	
1964 06A	ELEKTRON 1	746	USSR	30 JAN	169.3	60.86	7120	400	
1964 06B	ELEKTRON 2	748	USSR	30 JAN	1356.3	59.85	67778	643	
1964 06C		750	USSR	30 JAN	168.2	60.82	7036	394	
1964 06D		751	USSR	30 JAN	1384.0	59.96	68847	676	
1964 10A	COSMOS 25	757	USSR	27 FEB	91.1	49.05	403	253	
1964 11A		759	US	28 FEB	94.6	82.07	511	494	
1964 11B		760	US	28 FEB	94.3	82.07	491	477	
1964 11C		761	US	28 FEB	94.4	82.10	497	480	
1964 13A	COSMOS 26	766	USSR	18 MAR	89.9	48.99	292	239	
1964 15A	ARIEL 2	771	US/UK	27 MAR	101.1	51.65	1323	291	136.558
1964 15B		775	US/UK	27 MAR	100.8	51.67	1306	289	
1964 15C		847	US/UK	27 MAR	104.2	51.39	1538	371	
1964 16D		785	USSR	2 APR	HELIOCENTRIC ORBIT				
1964 19B	POLYOT 2	784	USSR	12 APR	92.2	58.06	460	306	
1964 26A		801	US	4 JUN	103.1	90.49	949	862	
1964 26B		805	US	4 JUN	103.9	90.19	983	903	
1964 26C		806	US	4 JUN	102.3	90.81	951	789	
1964 26D		809	US	4 JUN	103.1	90.50	948	863	
1964 28A	COSMOS 31	803	USSR	6 JUN	90.9	48.96	419	215	
1964 28B		804	USSR	6 JUN	89.3	48.96	232	203	
1964 30A		811	US	13 JUN	91.6	115.00	360	346	

OBJECTS IN ORBIT

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE Km.	PERIGEE Km.	TRANSMITTING FREQ. (MC/S)
1964 LAUNCHES (CONT'D)									
1964 31A		812	US	18 JUN	101.6	99.82	846	823	
1964 31B		813	US	18 JUN	101.6	99.82	844	827	
1964 31C		815	US	18 JUN	101.6	99.83	841	827	
1964 35A		824	US	2 JUL	94.9	82.08	532	496	
1964 36B		826	US	6 JUL	91.3	92.99	395	290	
1964 38A	ELECTRON 3	829	USSR	10 JUL	168.2	60.80	7027	402	
1964 38B	ELECTRON 4	830	USSR	10 JUL	1313.8	60.69	66252	462	
1964 38C		831	USSR	10 JUL	168.6	60.81	7061	403	
1964 38D		832	USSR	10 JUL	1341.2	60.90	67368	451	
1964 40A		836	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED				
1964 40B		837	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED				
1964 40C		838	US	17 JUL	2366.2	36.73	104665	217	136.770
1964 41B		843	US	28 JUL	BARYCENTRIC ORBIT				
1964 42A	COSMOS 36	844	USSR	30 JUL	91.9	49.00	483	252	
1964 42B		845	USSR	30 JUL	91.8	48.99	474	252	
1964 43A		846	US	5 AUG	90.5	79.97	421	181	
1964 44A	COSMOS 37	848	USSR	14 AUG	89.0	64.97	241	209	
1964 44B		849	USSR	14 AUG	89.5	65.01	294	216	
1964 45A		850	US	14 AUG	89.0	95.50	308	149	
1964 45B		851	US	14 AUG	127.4	95.60	3753	263	
1964 45C		852	US	14 AUG	88.7	95.50	247	144	

PLEASE ADD THE FOLLOWING TO THE DECAY OBJECTS LIST:

OBJECT	CODE NAME	CATALOGUE NUMBER	SOURCE	LAUNCH	DECAY
1964 30B		820	US	13 JUN	7 AUG 64
1964 37A		828	US	10 JUL	6 AUG 64
1964 39B		834	US	15 JUL	1 AUG 64

* APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.

** TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LISTS.

$ TRANSMITTING ON COMMAND ONLY.

& TRANSMITTING WHEN IN SUNLIGHT ONLY.

NO CATALOGUE NUMBER ASSIGNED.